Program Document for HNTES GUI ---written by Zhenzhen 07/25/2012

1. Read the prefix flow data files and populate the MySQL database, which was set up on zelda2.
   1. Input arguments: month, day, subnet. Input files: /net/longtmp/zy4d/results on fir
   2. Output: 214 pbr tables (one table per day) with column names day numbers (the entries in each column can store alpha-bytes, alpha-time, or number of raw IP flows), and row names alpha prefix flow IDs. Each table contains all the days till the current day. Output files: /net/longtmp/zy4d/PBR on fir.
   3. The programs are in the PopulateMySQL folder. Part1\_setup.cpp set up the tables in mysql, Part1.cpp populate the tables.
2. This step is a pre-step for step 3 and 4. Eight middle result files are created for 4 different aging parameter values (7, 14, 30, never) and 2 subnets (/24 and /32).
   1. Input files: the output files from step 1
   2. Output files: GUI/pbr/output in dropbox. The column names of the output files are: "MissedAlphaBytes", "MissedNumRawIPFlows", "MissedNumPrefixFlows","MatchedAlphaBytes(B)","PerDayAlphaBytes(B)","MatchedNumRawIPFlow","PerDayNumRawIPFlow","MatchedNumPrefixFlow","PerDayNumPrefixFlow","PerDayPBRSize". The row names of the output files are day number.
   3. The programs (c.pbs, c.sh, and c.R) are in GUI/pbr/ of dropbox, these programs were run on fir.
3. Plot the pbr table growth.
   1. Input: Using the output from step 2 as input to the Plot\_PBR\_2.R
   2. Output: the R program Plot\_PBR\_2.R plots the pbr-2.png
   3. The R program and the result figure are in GUI/PlotPbr
   4. This figure is the Figure 8 of alpha-flow-jnl-paper-truncated.pbf
4. Plot the percentage of alpha-bytes that would have been redirected.
   1. Input files: using the output from Step 2 as input to the total.R
   2. Output files: GUI/PercentageRedirected/TotalOutput
   3. Plot\_total2.R reads the above output, and generates the Total2.png
   4. This figure is the Figure 7 of alpha-flow-jnl-paper-truncated.pbf
5. Plot 3 measures of prefix IDs (total per-day alpha-bytes, total per-day alpha-time, and total per-day number of unique 5-tuple IDs of alpha flows)
   1. Input files: Input arguments: month, day, subnet. Input files: /net/longtmp/zy4d/results on fir
   2. The programs Num.pbs, NumRawIPDaily.sh, NumRawIPDaily.R in folder GUI/3MeasuresRawIPFlow/code generate BytesRawIPDaily .txt and NumRawIPDaily .txt files in folder GUI/3MeasuresRawIPFlow/MiddleResult.

The programs Time.pbs, TimeRawIPDaily.sh, TimeRawIPDaily.R in folder GUI/3MeasuresRawIPFlow/code generate TimeRawIPDaily .txt file in folder GUI/3MeasuresRawIPFlow/MiddleResult.

The programs Plot3MeasuesRawIPFlow.R and Plot3MeasuesRawIPFlow\_SmoothSpline.R in folder GUI/3MeasuresRawIPFlow/code read the middle results files in the MiddleResult folder, and generate figures in GUI/3MeasuresRawIPFlow/figure.

* 1. These figures are Figure 3 and Figure 4 of alpha-flow-jnl-paper-truncated.pbf